IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (previously presented) In a system for sending messages over a network between first and second computing units, method comprising the following steps:

(a). computing r components of encrypting key e.sub.1, e.sub.2, . . . , e.sub.r and r components of decrypting key d.sub.1, d.sub.2, . . . , d.sub.r according to the following relations:

(e.sub.1).(d.sub.1)+(e.sub.2).(d.sub.2)+ . . . +(e.sub.r).(d.sub.r)=(k.sub.1).(p-1).(q-1)+1 and

(d.sub.1)+(d.sub.2)+ . . . +(d.sub.r)=(k.sub.2).(p-1).(q-1), where:

p and q are two prime numbers;

k.sub.1 and k.sub.2 are suitable integers; and

encrypting a message M into r cipher versions M.sub.1, M.sub.2, . . . , M.sub.r using the r blinded components of the encrypting key e.sub.1+t, e.sub.2+t, . . . ,e.sub.r+t as follows:

M.sub.1=(M.sup.(e.sub.1+t)) mod n

M.sub.2=(M.sup.(e.sub.2+t)) mod n

. . .

M.sub.r=(M.sup.(e.sub.r+t)) mod n, where:

n=p.q;

t is a random number generated on an encrypting unit and discarded after encryption is complete;

mod represents the remainder left when left hand operand is divided by right hand operand;

(b). delivering all the cipher versions of the message individually to a destination unit in source routing mode, or hop-by-hop routing mode with a small time gap between every two consecutive cipher versions;

(c). collecting all the cipher versions at the destination unit;

(d). computing r number of values N.sub.1, N.sub.2, . . . , N.sub.r using r components d.sub.1, d.sub.2, . . . , d.sub.r of decrypting key, where:

N.sub.1=((M.sub.1).sup.(d.sub.1)) mod n

N.sub.2=((M.sub.2).sup.(d.sub.2)) mod n

. . .

N.sub.r=((M.sub.r).sup.(d.sub.r)) mod n, where:

n is the same composite number as used for encryption;

(e). reproducing the original message M as follows:

M=(N.sub.1).(N.sub.2) . . . (N.sub.r) mod n, where:

n is the same composite number as used for encryption;

wherein r=2.

2.-9. (Cancelled)

10. (previously presented) A system of claim 1, wherein at least one encrypted version of the message is bypassed to a secret host that is not exposed to the public while the remaining are directed to a main host, where the bypassed cipher versions are also collected from the secret host.

11. (Original) A system of claim 1, wherein redundant cipher versions of a

message are generated and delivered to the destination, where they are identified and discarded before decryption.

12. (Original) A system of claim 10, wherein the cipher version received at a secret host is further encrypted in a symmetric key encryption method before sending it to the main host, where it is decrypted by the same symmetric key.

13. (previously presented) A system for sending messages over a communications channel, comprising:

an encoder to transform a message M into two or more cipher versions M.sub.1, M.sub.2, . . . , M.sub.r as follows:

M.sub.1=(M.sup.(e.sub.1+t)) mod n

M.sub.2=(M.sup.(e.sub.2+t)) mod n

. . .

M.sub.r (M.sup.(e.sub.r+t)) mod n, where:

t is a random number generated on an encrypting machine;

e.sub.1, e.sub.2, . . . , e.sub.r are encrypting key components computed according to the relations:

(e.sub.1).(d.sub.1)+(e.sub.2).(d.sub.2)+ . . . +(e.sub.r).(d.sub.r)=(k.sub.1).(p-1).(q-1)+1

and

(d.sub.1)+(d.sub.2)+ . . . +(d.sub.r)=(k.sub.2).(p-1).(q-1);

p and q are prime numbers, and n=p.q;

k.sub.1 and k.sub.2 are suitable integers;

(d.sub.1), (d.sub.2), . . . , (d.sub.r) are components of an other key used by a recipient for decrypting the cipher versions into the original message;

a decoder coupled to receive the cipher versions M.sub.1, M.sub.2, . . . , M.sub.r from the communications channel and to transform them back to the original message M, where M is a function of M.sub.1, M.sub.2, . . . , M.sub.r and computed as follows:

N.sub.1=((M.sub.1).sup.(d.sub.1)) mod n

N.sub.2=((M.sub.2).sup.(d.sub.2)) mod n

. . .

N.sub.r=((M.sub.r).sup.(d.sub.r)) mod n

M=(N.sub.1).(N.sub.2) . . . (N.sub.r) mod n.

wherein r=2.

14. (previously presented) A computer-readable medium having computer-executable instructions causing a computer to compute the following: key components (e.sub.1), (e.sub.2), . . . , (e.sub.r) and (d.sub.1), (d.sub.2), . . . , (d.sub.r) according to the relations as follows: (e.sub.1).(d.sub.1)+(e.sub.2).(d.sub.2)+ . . . +(e.sub.r).(d.sub.r)=(k.sub.1).(p-1).(q-1)+1 and (d.sub.1)+(d.sub.2)+ . . . +(d.sub.r)=(k.sub.2).(p-1).(q-1), where: p and q are prime numbers; and k.sub.1 and k.sub.2 are suitable integers; cipher versions of the original message M as follows: M.sub.1=(M.sup.(e.sub.1+t)) mod n M.sub.2=(M.sup.(e.sub.2+t)) mod n . . . M.sub.r=(M. sup.(e.sub.r+t))mod n, where: t is a random number generated on an encrypting machine and discarded after encryption is complete. original message as follows: N.sub.1=((M.sub.1).sup.(d.sub.1)) mod n N.sub.2=((M.sub.2).sup.(d.sub.2)) mod n . . . N.sub.r=((M.sub.r).sup.(d.s-ub.r)) mod n M=(N.sub.1).(N.sub.2) . . . (N.sub.r) mod n

15. (Cancelled)

16. (cancelled)